

INSTRUCTIONAL MANUAL

KID ENHANCEMENT TOOLKIT

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V1.03

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INTRODUCTION

PURPOSE

The purpose of this toolkit is to tap into the full capabilities allowed within the Polygon-Kids Pack. With so many different attachments and characters it was ripe for playing and customizing. This started with creating a simple character select screen and has evolved to include physics scripts and emotions.

THANKS

We want to thank you for your support and hope you enjoy this tool. If you have any questions about this asset, please send them our way at support@linkirastudios.com or joining our discord.

CHANGELOG

V1.03 – Updated 1/23/2022

Phoneme Generation

- FIX "W" sound was not working correctly
- ADD Show Phoneme Dictionary Button
- ADD Audio Clip Play on Generate Animation
- ADD Audio Length Text to allow better match up with Animation
- ADD Detect Character Automatically on Play
- ADD Eyebrow Emotion support for POLYGON Kids

Emotions

- ADD Booleans for Default Emotion e.g., Attach Script and Make Character always angry or crying

V1.02 – Updated 11/01/2021

- Added Attachment Color Changing
- Added Mass Generator Sliders
- Added Phoneme Emotion Panel
- Added FAQ for Saving Prefabs
- Added Reload Attachments
- Added Eyelash Toggle
- Added URP/BuiltIn Light Prefabs

V1.01 – Update 5/12/2021

- Added Adult Faceplate Support for Phoneme
- Added Previous/Next Buttons for Character Generator
- Added Default Animator option
- Added Random only Attachment Buttons

V1.0 – Initial Released version

GETTING STARTED

STEP 1: IMPORTING TEXT MESH PRO

Most of the UI components utilize Text Mesh Pro. Without this the dropdowns, and boxes may not work correctly. In order to rectify this, you must import text mesh pro first.

This can be done by following the below steps.

- 1) In the toolbar go to Window and Select 'Package Manager'
- 2) Find TextMeshPro and click Install

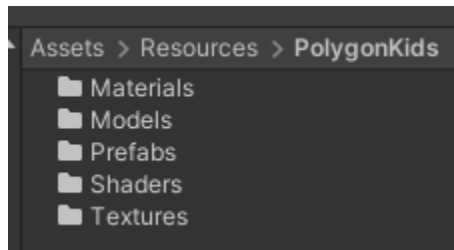
In the new box that opens select only the essentials. No need for the examples.

STEP 2: IMPORT THE KID ENHANCEMENT TOOLKIT

Download the UnityPackage from the Asset Store and Drag it into your new project. Or go to the Unity Package Manager and download

STEP 3: IMPORTING POLYGON-KIDS

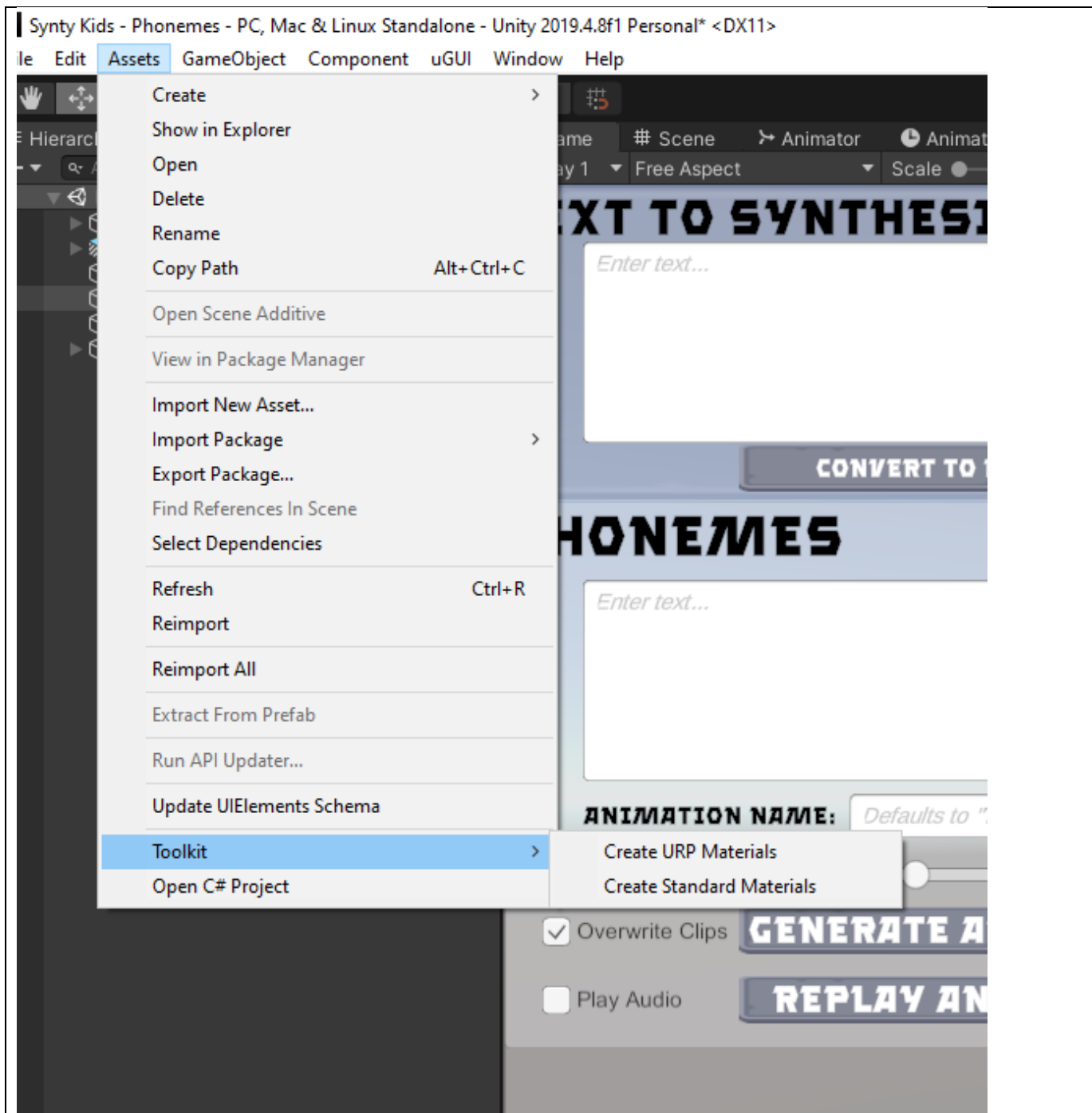
- 1) Import Polygon Kids
- 2) Convert to URP if required
- 3) Create a Resources folder
- 4) Copy Polygon Kids folder to Resources



Folder

STEP 4: CREATING THE FACE MATERIALS

- 1) This pack contains one additional face texture that fits the harder sounds. Think difference between Shhh and Duh.
- 2) Drag 'Polygon_Kids_Texture_Facial_Phonemes_CDGKNSTXYZ_Freckles_01.png' from LinkiraStudios/KidEnhancementToolkit/Materials to /Assets/Resources/PolygonKids/Textures/Face_Human/Normal/Phonemes
- 3) In the toolbar go to Assets/Toolkit/ and Select the appropriate Create Materials for your pipeline.
- 4) This creates the face materials in a folder located at /Assets/Resources/PolygonKids/Textures/MaterialFaces



PHONEMES

The purpose of the Phonemes feature is allow smaller developers to write scripts, that can then be imported to create facial animations that can be loaded later. This can be also coupled with AI voice actors such as Replica to create an effect like this [youtube link from our studio](#).

TEXT TO SYNTHESIZE

Enter text...

CONVERT TO PHONEMES

MODEL TYPE

☒ Kid ☐ Adult Male ☐ Adult Female

EMOTION

Pause Expressions Eyebrow (Kids Only)

Normal Normal

PHONEMES

Enter text...

ANIMATION NAME: Defaults to "Text to Synthesize" if blank...

SPEED: #

ANIM LENGTH: 10s AUDIO LENGTH: 10s

☒ Overwrite Clips ☐ Play Audio ☐ Show Phoneme

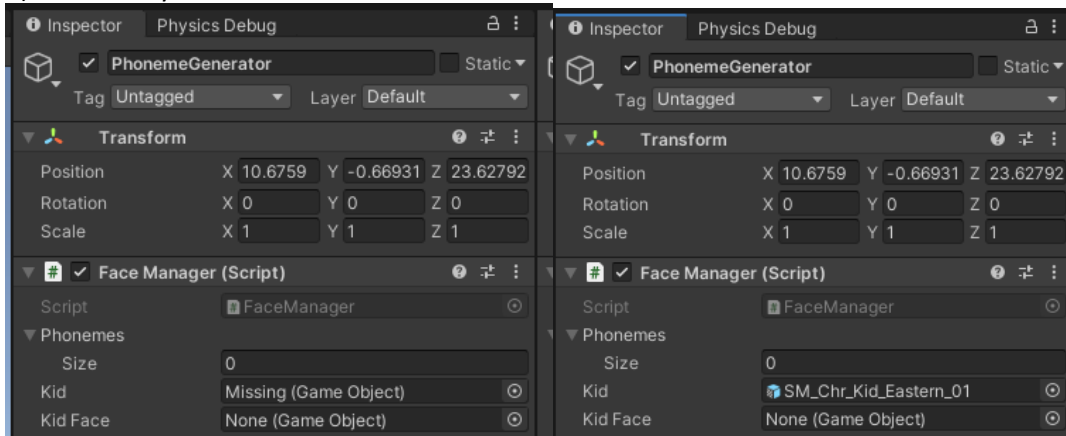
GENERATE ANIMATION

REPLAY ANIMATION

Refresh Audio Length

SETTING UP

- 1) Drag a Synty Kid Asset into the Scene
- 2) Right Click and Reset Transform (not 100% needed)
- 3) Drag the EmotionalStandalone Script in the root Scripts folder and drag onto the Character Root (sibling of the Animator)
- 4) If you receive a debug of “No Kid Found” Open Up the PhonemeGenerator in the Inspector and drag the kid into the Face Manager Script
- 5) Press Play



USING THE TOOL

- 1) Type in the Text you want to synthesize. Note: Numbers and symbols that aren't ,.!?' Won't be parsed.
- 2) Click the Convert to Phonemes

TEXT TO SYNTHESIZE

Enter text...

CONVERT TO PHONEMES

MODEL TYPE



Kid



Adult Male



Adult Female

PHONEMES

Enter text...

ANIMATION NAME: Defaults to "Text to Synthesize" if blank...

SPEED: VALUE:



Overwrite Clips

GENERATE ANIMATION



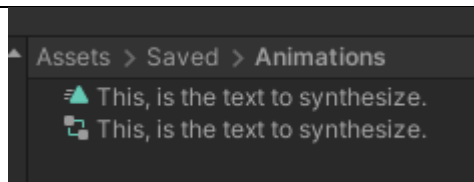
Play Audio

REPLAY ANIMATION

CLIP LENGTH:

10s

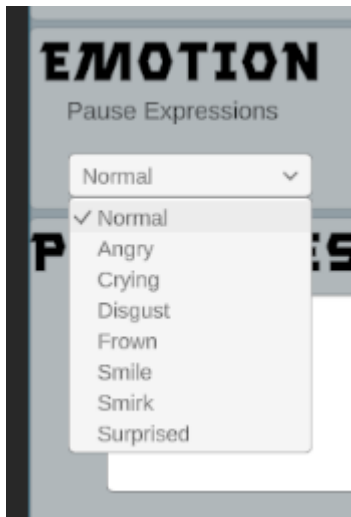
- 3) Any punctuation will be converted to XX. This is the pause placeholder in the script. Adding a period at the end really helps.
- 4) The Model Type defaults to kids, but if you want the animation clip to work for adults males or females, select the appropriate toggle.
- 5) You can edit this box if you want to get rid of phonemes or add more pauses. You can also go in and edit the animation once created.
- 6) The Animation Name is the name of the file that will be generated. Suggest filling this out if you have a long text to synthesize. The script will shorten the clip to the first 64 characters.
- 7) The Speed can be adjusted. The Default is to do 8 phonemes a second. This may be a little slow.
- 8) Overwrite clips allows for you to overwrite the clips with the same name. If initially creating keep it checked, because otherwise replaying the animation will run into issues.
- 9) Play Audio can be checked if you also want to play an audio with Replay Animation Button.
- 10) Generate Animation creates two files the animation and the animation controller and can be found in Assets/Saved/Animations



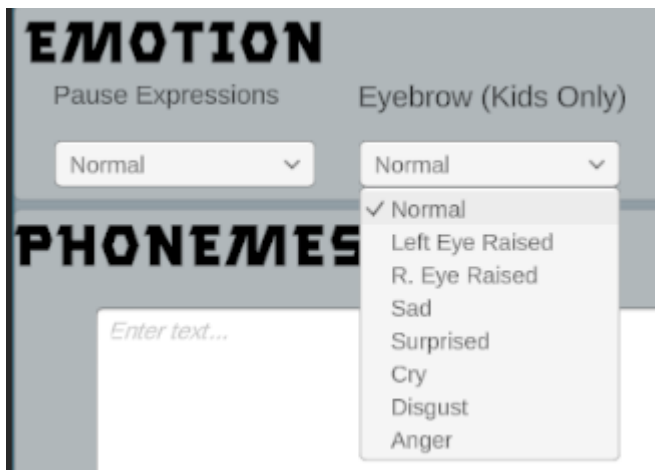
11) Replay Animation will replay the last animation

EMOTION PANEL

Added an emotion drop down for use in emotions. These will generate during any pause. By default the ending animation is a pause. You can add an "XX" to add a pause elsewhere. Select the emotion and press Generate Animation to see the change.



A new dropdown is added in 1.03. This allows for eyebrow manipulation for Polygon-Kids. This creates



KID CREATOR

The purpose of Kid Creator was to maximize the usage of all the different Polygon-Kid Models and all the Polygon-Kid Attachments to create custom Prefabs

HOW TO USE

- 1) Open up Kid Randomizer Scene
- 2) Press Play
- 3) Make Changes
- 4) Save Prefab and Repeat as Desired

REQUIRED COMPONENTS

The scene must have two components, the CharacterSelectCanvas, as well as the Randomizer.

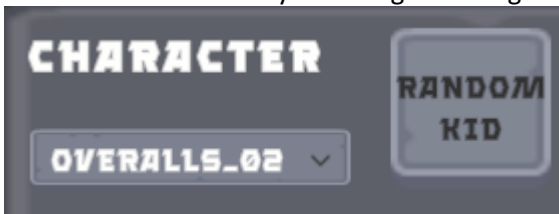
The Randomizer must have the following scripts

- Character Sorter
- Save Prefab (if you want to save)
- Randomizer
- Load Prefabs
- Change Emotion
- ColorChanger

FEATURES

CHANGE CHARACTER

The character can easily be changed through the dropdown menu or through the random kid button.



Examples: Cowboy, Cowboy2, Farmer



CHANGE ATTACHMENTS

Using a sorting algorithm for different attachments, this product allows for the addition of one mask, one hair, one hat, and one backpack. There is a potential to add two masks, like a beard and eyeglasses, but for simplicity its one. Each separate attachment can be added using the dropdown or the random button.

HAIRSTYLE

NONE

RANDOM HAIR

HATS

NONE

RANDOM HAT

MASKS

NONE

RANDOM MASK

BACKPACKS

NONE

RANDOM BAG

So for example you can add a hair, then a hat, then a pair of glasses.



Backpacks can be viewed using the rear cam.



NOTE: This tool doesn't check for clipping issues or remove inside meshes. So some combinations will not look good!

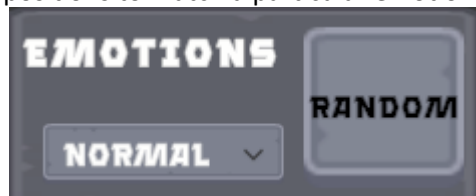
REVERT TO DEFAULT ATTACHMENT

For efficiency sake, I added a Remove Button that changes the hair/hat/mask/bag back to the empty or none item.



CHANGE EMOTION

The bottom right Emotion Panel has a Dropdown panel that can be used to change the facial expression and eyebrow positions to match a particular emotion.



It can be changed by using the dropdown button or the random button.

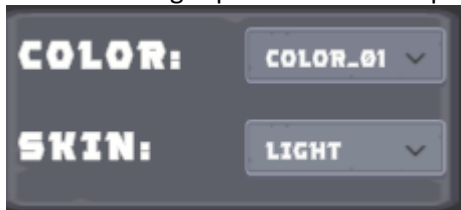


Examples: Angry, Surprised, Smirk, Crying



CHANGE CHARACTER AND SKIN COLOR

The bottom right panel has two dropdowns to change the colors of the character and skin color.



The skin can be light, tan or dark.



Each character has four options for colors. There are two many variations to be able to say option 2 is pink etc. But changing the color changes core colors of the chacter.



Changing one will keep the other the same.

CHANGE ATTACHMENT COLOR



Hairstyle uses all colors (1A-4C). They can be cycled by the green button.



Masks, Hats, and Backpacks only use the core 1A/2A/3A/4A as textures. It does not appear that changing the alternative material changes the textures on these attachments.



RANDOMIZATION



Each individual option has a Random Button. There is a button that randomizes the kid, the color, the skin color, the hair, hat, mask, bag, or emotion. There is also a button that randomizes everything including a character (Random All), as well as, a Random attachments only if you want to keep the color and character the same.



TOGGLE FACIAL OPTIONS



These toggles in the Character panel allow you to do several things. The first box adds a Goblin mouth to the character.



The second two toggle boxes, Elf and Half-Elf turn the character into an elf(longer ears, or half-elf, (shorter ears). Only one can be picked at a time, so selecting one will turn off the other.



The fourth box is Freckles. This activates the freckle option on a character.



A missing tooth option to the emotions. Not all emotions show the teeth, but the ones that do will have the missing tooth shown.

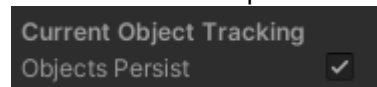


Added an option to toggle the eyelashes Left (Male), Right (Female).



PERSISTENCE

In Randomizer.CharacterSorter there is a Boolean called Objects Persist. This is on by default. If you no longer want the attachments to persist across kids, you can change this to false.

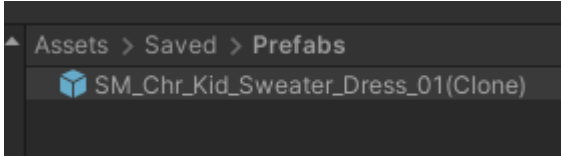


SAVING

Once you have a character you want to save to use elsewhere, you can click the Save Prefab Button at the bottom.

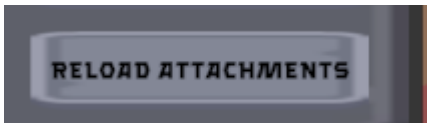


This will save a Prefab in Assets/Saved/Prefabs



RELOAD ATTACHMENTS

A new button was added



This button reloads attachments after you save the prefab, if you want to.

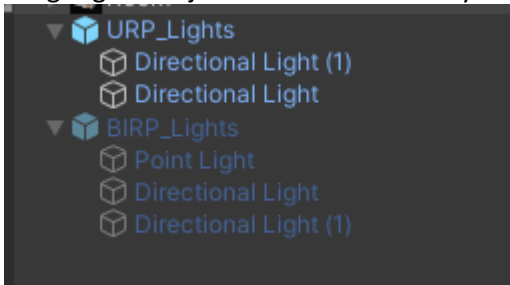
PREVIOUS AND NEXT



Next to each drop down is a left and right arrow. These will change the option one up (left arrow) or down (right arrow) on the dropdown list.

CHANGE LIGHTING FOR URP/BUILTIN

A Light gameobject is now added that you can disable or enable depending upon the rendering profile.



MASS KID GENERATOR

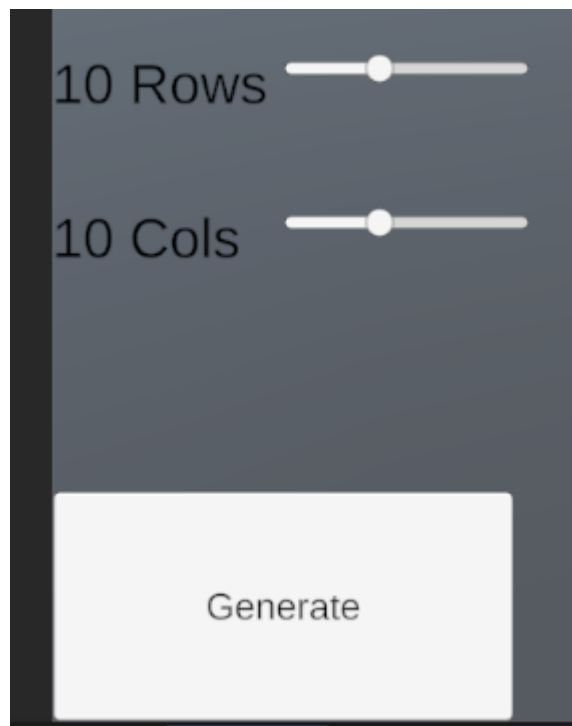
The mass generator is meant to work easily out of the box. This can be used to quickly generate a ton of characters. Perhaps generate them in the background and create an object pool.

HOW TO USE

- 1) Click Play
- 2) Click Generate button
- 3) Save All if you want to save them all

ADJUST NUMBER TO GENERATE

Added sliders that can be adjusted to determine the number of rows and columns of characters you want generated.



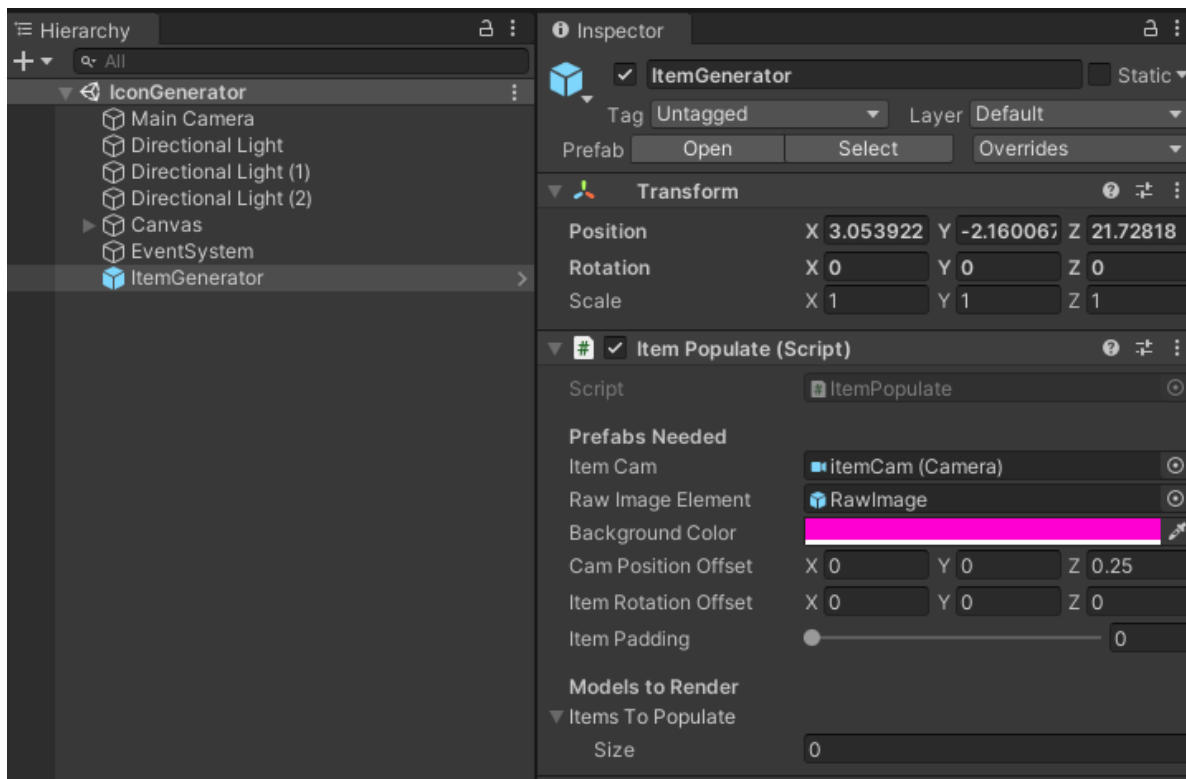
The max that will fit on the Plane is 50x50 and takes a few seconds to render them all.

ICON GENERATOR

HOW TO USE

The icon generator uses render textures and a byte read to create textures you can use in your project permanently. This is an editor only tool and can't be used at runtime.

1) Open Up ItemGenerator GameObject

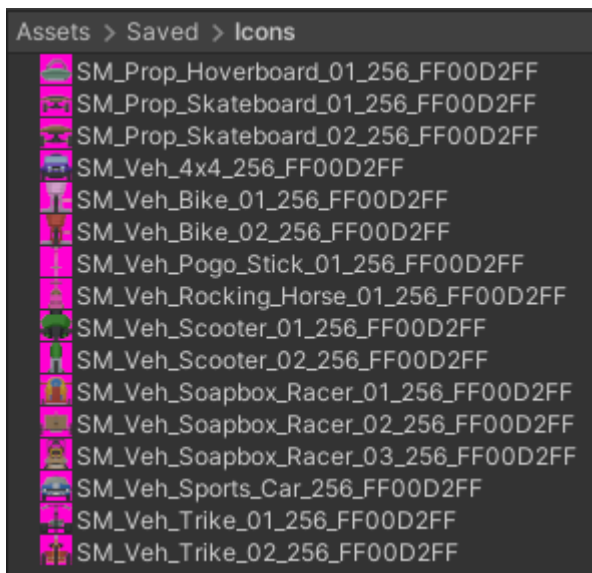


Make sure the item Cam and Raw Image element are attached. If not they can be found in the Prefabs Folder.

1) Drag and Drop any number of Models into the Items To Populate List. Although 16 is about how much can be on screen at a time with initial settings



- 2) Click Play and the Objects should render
- 3) Click Save Icons to save the current icons to Assets/Saved/Icons. NOTE: The Editor Player will stop and a progress bar will populate.



The icon will save the size of the image as well as the hex code for the background color.

FEATURES

ADJUST THE ICONS

The icons can be adjusted several ways.

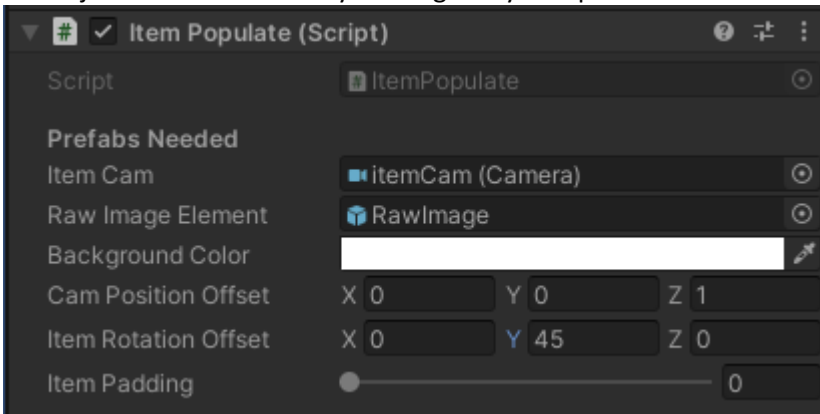
Background Color

- 1) Click Background color on the ItemPopulate Script
- 2) Click Regenerate Icons

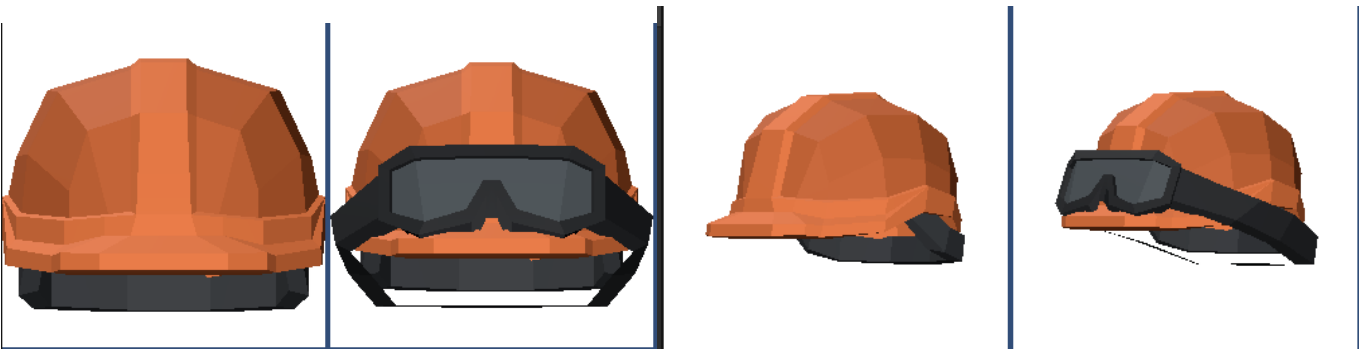


ROTATION OF ITEMS

- 1) With the objects loaded, go to the Item Populate Script and Change the Item Rotation Offset. This will rotate the object around the axis by the degrees you input

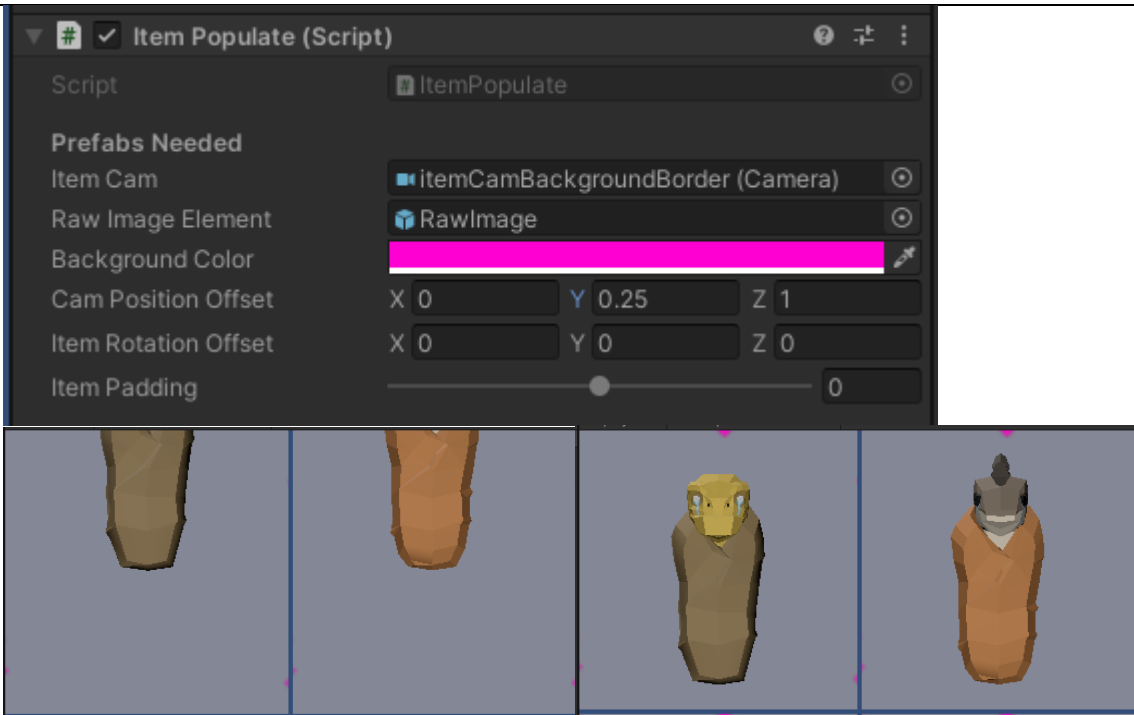


- 2) Click Regenerate Icons



ADJUST CAMERA POSITION

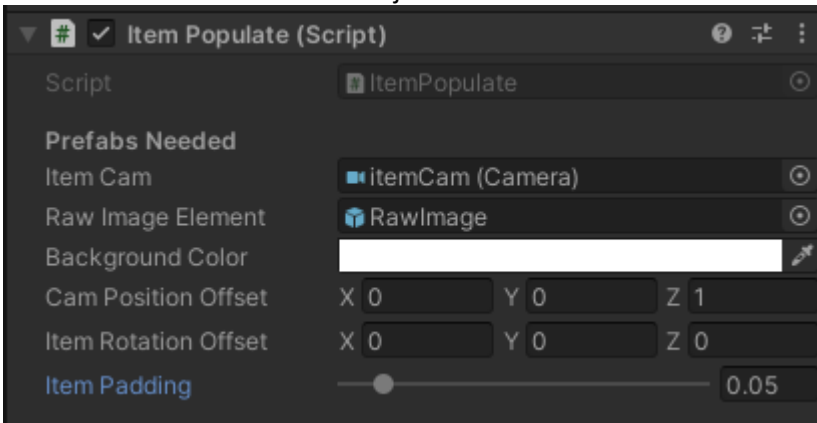
- 1) The code utilizes bounding boxes to find the center of a mesh renderer. With Skinned Mesh Renderer's it has some difficulty due to the various ways its coded and attached. Therefore It defaults to a camera sensor size of .3 or can fit an object .6 unity units in the box. It also centers on the root position (the floor) for many skinned mesh renderer models and so you may need to adjust the camera position.
- 2) This can be done by changing the Cam Position Offset in the ItemPopulate Script and clicking regenerate icons



- 3) The most common change is the height (Y). The next most common is the forward (Z). This can occur when an object is really big and if you rotate you might get some clipping. Adjusting the Z fixes this.

ADJUST ZOOM OR PADDING OF ITEMS

- 1) With the objects loaded, go to the Item Populate Script and Change the Item Padding. This will add the number in meters around the object.



- 2) Click Regenerate Icons.



ADJUST ICON SAVING SIZE

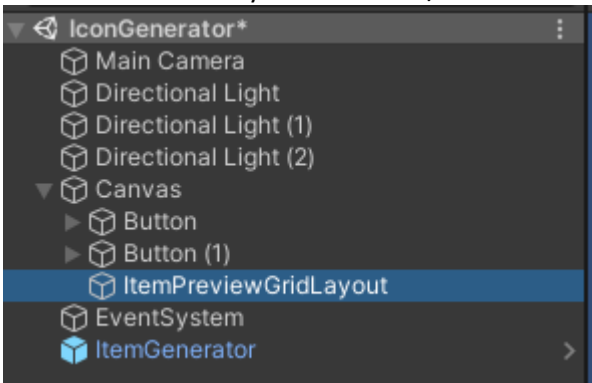
- 1) Double Click the Item Populate Script
- 2) Change the sqr variable.

```
24 //Needs to be a power of 2, such as 128, 256, or 512
25 private int sqr = 256;
```

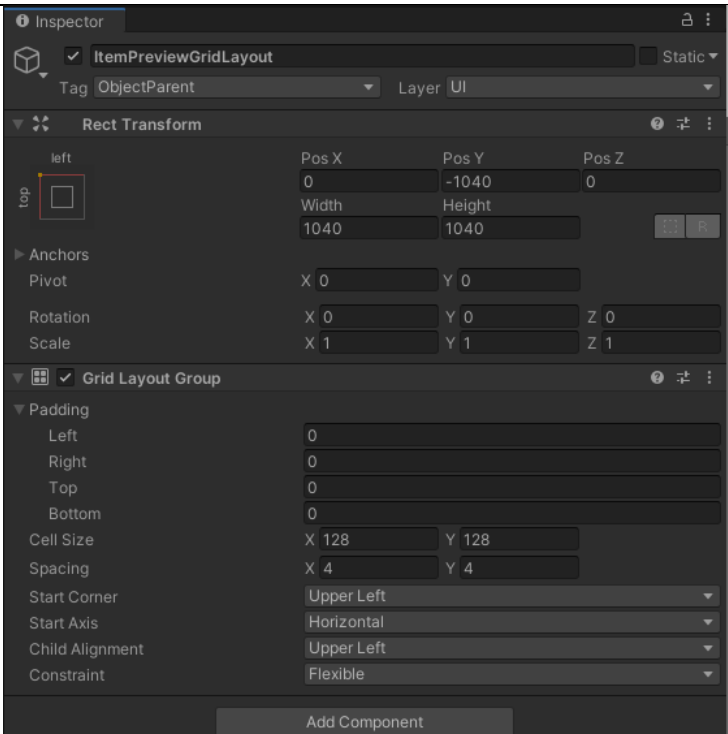
- 3) You can resize how you want, but needs to be power of two.

ADJUST PREVIEW SIZE

- 1) In the Scene Hierachy select Canvas/ItemPreviewGridLayout

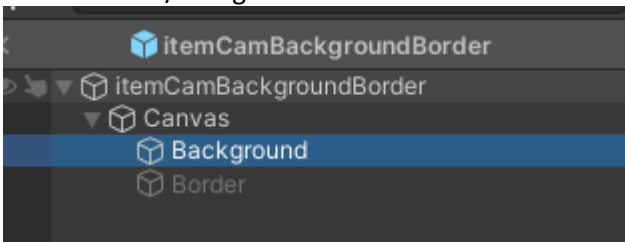


- 2) Change the Cell Size from x 256 y 256 to whatever you would like. It is usually best to keep to powers of two to keep the square nature of the icon saving.

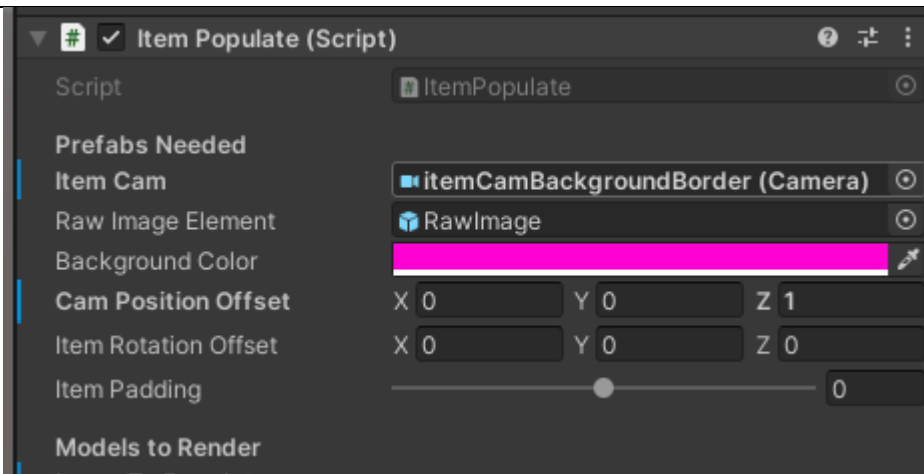


TEXTURE BACKGROUND

- 1) Go Into the Prefabs folder and open up itemCamBackgroundBorder
- 2) Select Canvas/Background



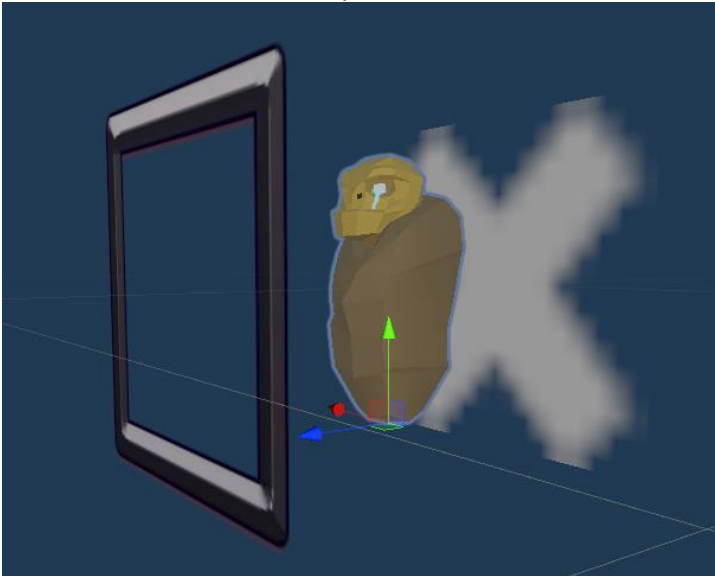
- 3) Change the Source Image Sprite to the Texture Background you desire
- 4) Drag the itemCamBackgroundBorder into the itemGenerator, Item Cam Prefab slot



5) Now click play



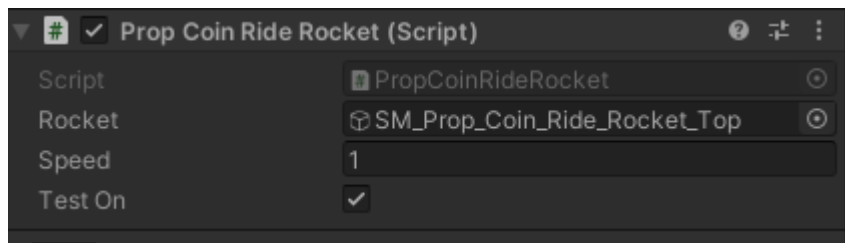
6) You may also try and add a border using this method, but due to resizing it is quite difficult to get perfect. My recommendation is to stack your border after icon creation.



MOVEMENT SCRIPTS

HOW TO USE

The Scripts in the PropMovement Folder are intended to be dragged and dropped on the parent of the appropriate Prop to get pieces of it to move. You can then call it using an appropriate function (Open() or Close()), or if you want it to just move, use the testOn Boolean. I will be updating this over time, but here are a few that work for this release.



PROPS

DOLLHOUSE



OVEN



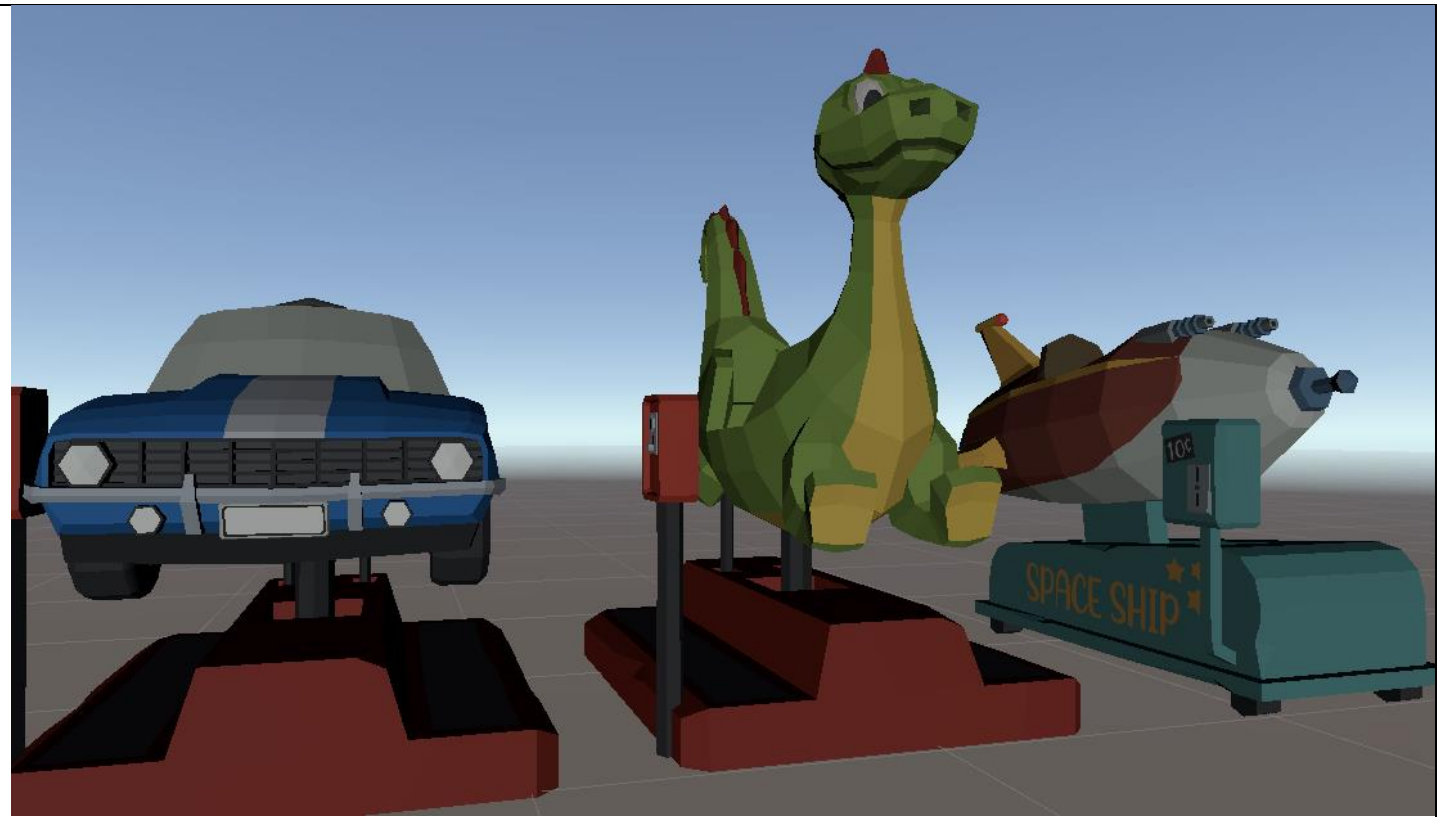
TOY PLANES

TOY TRUCK



ROCKER

PropCoinRide.cs for SM_Prop_Coin_Ride_Car and SM_Prop_Coin_Ride_Dragon
PropCoinRideROcket.cs for SM_Prop_Coin_Ride_Rocket



LOCKERS

PropLocker.cs for SM_Prop_Locker_01

PropLocker3.cs for SM_Prop_Locker_02

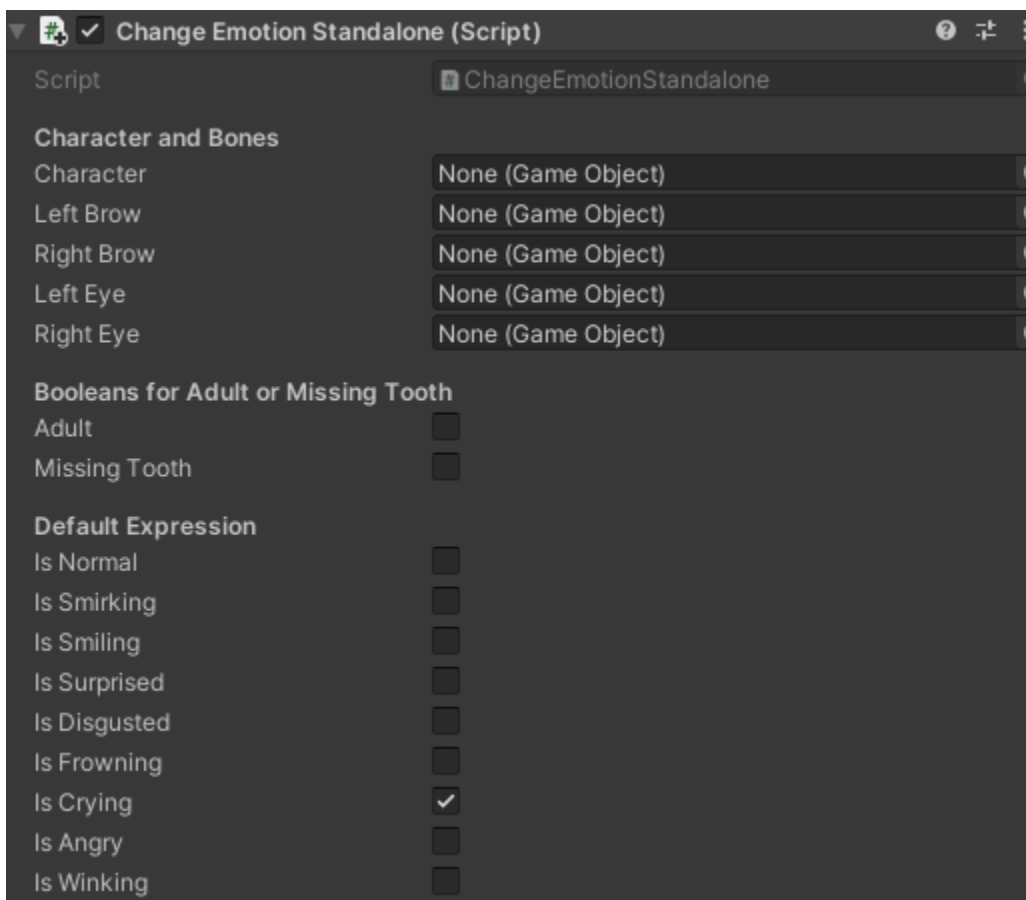
EMOTION CHANGER

The Emotion Scene is just to show how easy it is to change a character's emotions using the characters.

- 1) Drag a character onto the scene and reset its transform
- 2) Click Play
- 3) Change emotions

USE SCRIPT FOR CHARACTERS

Drag ChangeEmotionStandalone to any character root. This should be next to the Animator component.



Now you will be able to attach this script directly to the root of the character and so can be changed with simple calls such as

```
character.GetComponent<ChangeEmotionStandAlone>().Angry();
```

Or save the Emotion Script

```
Public ChangeEmotionStandAlone emotion;  
Start()  
{  
    Emotion = character.GetComponent<ChangeEmotionStandalone>();  
    Emotion.Angry();  
}
```


}

It will automatically detect the character, eyebrows and eyes.

You can also set the default expression with a Boolean selection of one of the expressions. This is more a set and forget for background NPCs. Have a permanent crying kid, or angry kid walking around.

BABY GENERATOR

HOW TO USE

- 1) Open Up the BabyRandomizer Scene
- 2) Press Play
- 3) Change Baby Attachments
- 4) Save Prefab and Repeat as Desired

FEATURES

CHANGE BABY

There are two ways to change the baby. The first is the Random baby Button. Press the Random Baby Button to pick a different baby at random. Since the space is only 7 different babies, there is a higher likelihood of collisions. So if it doesn't change press it again.

You will notice the dropdown also changes when you press the random. The other way to change the baby is to manually select using the dropdown Baby Menu. It should update on selection.



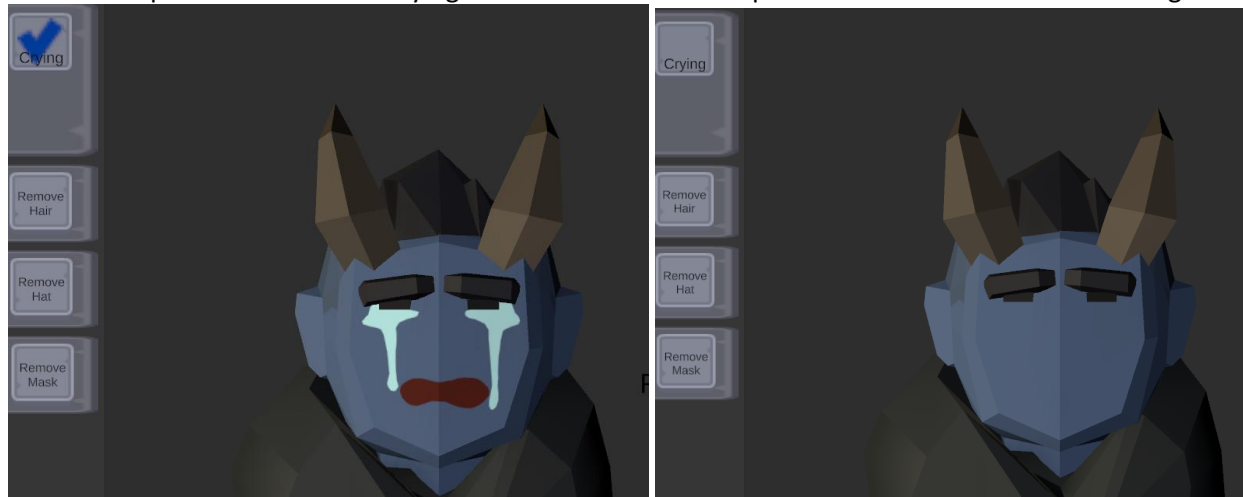
CHANGE SKIN COLOR

By default the Skin color is Light. The babies are not all humans, so the naming isn't the greatest. The Skin color can be changed by selecting a different dropdown.



MAKE BABY NOT CRY

This is a simple selection of the Crying check box. It should be persistent between character changes.



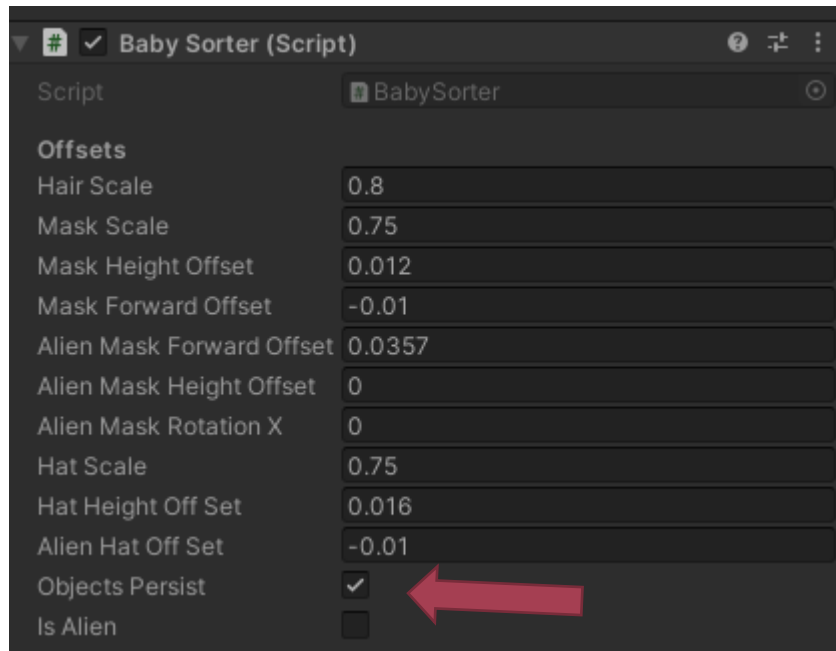
CHANGE HAIRSTYLE/HATS/MASKS

Similar to Changing the Baby, Hairstyles, Hats and Masks all have both a Random Button and a Dropdown to change/select the hairstyle, hat or mask you want. In addition, each of these has a Remove Button, that changes the hairstyle/hat/mask back to the default of none.



CHANGE PERSISTENCE

By default the babies save the attachments while changing which baby you are looking at. However, if you want it to remove all anytime you change the baby. That can be done by unchecking the Objects Persist toggle within the BabyManager Object on the BabySorter Script.



ADJUST OFFSETS BY USING THE REFRESH

While I have attempted to select Offsets that seem to make the most sense and fit the babies rather well, you may find for a particular mask or hat, that it needs to be adjusted every so slightly. This seems to especially be the case for the aliens.

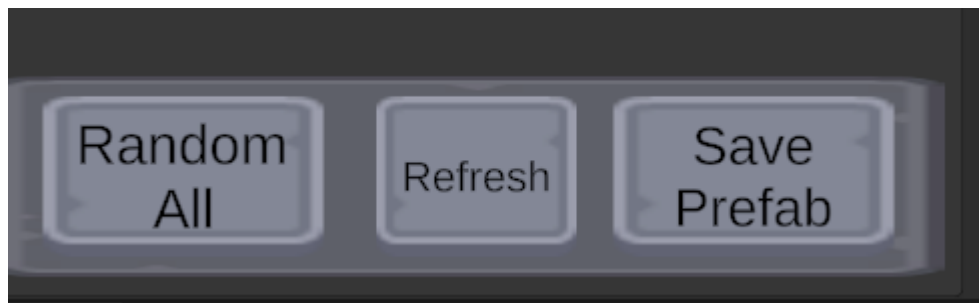


The scaling (Hair Scale, Mask Scale, Hat Scale) are for the X, Y, and Z at the same time. If you want to individually change the scale you will have to go into the code. But if you want to change them from say .8 to .75, you can edit it here. Click Refresh to Refresh the attachments with the new scale.

Mask Height Offset and Forward Offset are for adjusting the mask to be higher/lower and forward/back. In addition, there is a separate Mask offset for the alien faces. They have a more oblong head and so a default height seems to work better, but needs to be more forward due to their protruding nose. Last I included a Alien Mask Rotation X, which rotates the Mask so it can be angled with their face. About -20 degrees works well for Alien 2.

The Hats can also be adjusted vertically using the Hat Height Offset and Alien Hat Offset (for aliens).

As always, press refresh below to apply the changes.



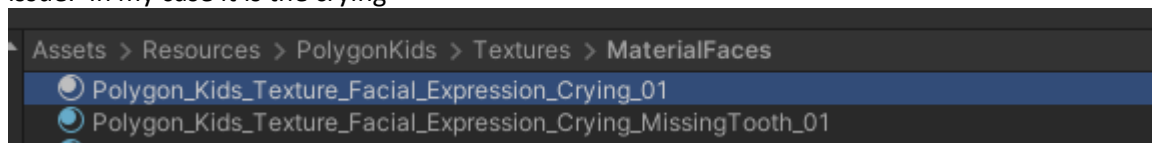
FAQ

CHARACTER FACE IS OFF

So I am not 100% sure why this occurs, but it is a really easy fix. If your face looks like below then the issue has something to do with the first time its loaded.



Navigate to the Assets.Resources.PolygonKids/Textures/MaterialFaces and click on the material that is causing you an issue. In my case it is the crying



Once you click on it it should be resolved

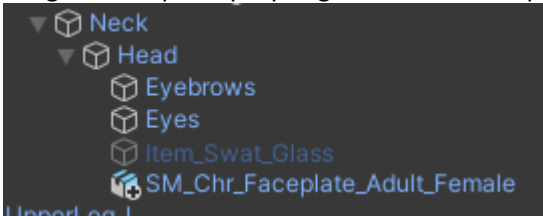
GETTING EMOTIONS TO WORK WITH SYNTY ADULT MODELS

Note: This will only work if you have Polygon Kids as well. The reason is the textures are only included in the Polygon-Kids pack.

Youtube Link

- 1) Download the Synty Adult Pack [here](#)
- 2) Unzip the Synty Adult pack
- 3) Drag a Synty Adult Model to the Emotion Scene

- 4) Click Alt and the error to completely untree the adult character
- 5) Drag and Drop the proper gender adult faceplate onto the head like below



- 6) Adjust the camera up slightly so you can see the face better.
- 7) Press Play

Note: Synty did not make this perfect, for all characters. Older assets don't have moveable eyebrows. Some also have permanent makeup and beards that make some facial expressions pretty bad.



Common Mistakes!

-Adult Models must be the FixedScaleCharacters if those are the ones included.

NOTHING IS LOADING

The most common issue with nothing loading is the Polygon-Kids asset folder is not located within the Resources Folder. Unity has functions to grab assets and do things with them, but only if in the resources folder.

ATTACHMENTS DISAPPEARED AFTER SAVE

When you Save a Prefab, a new instantiation of the character is created so you won't have issues changing the character again. However, in the process the attachments are destroyed and due to ordering the attachments aren't

reloaded immediately. A “Reload Attachments” button was added as a stop measure until the root cause can be identified.

Bottom Line: Press the Reload Attachments